

**SILENE ACAULIS (L.) JACQ. (CARYOPHYLLACEAE),
THE LARVAL FOODPLANT OF *DELIA PILIVENTRIS*
(POK.) (DIPTERA: ANTHOMYIIDAE)**

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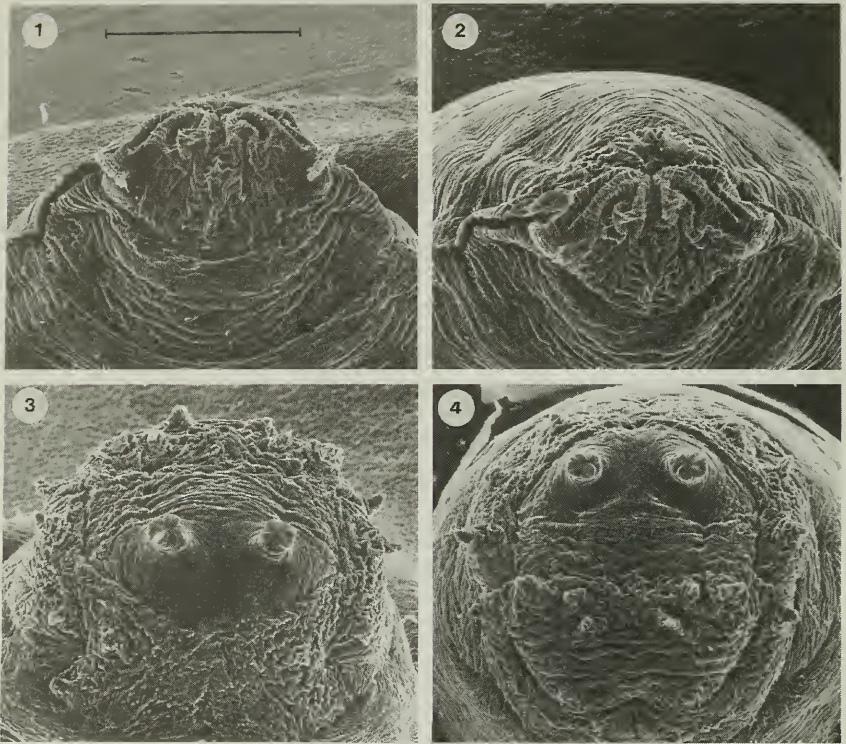
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The first British records of *Delia piliventris* (Pokorny, 1889) appear to be those of Collin (1933). Under the name of '*Delia fasciventris* Ringdahl M. S.', Collin reports that '3 males and a possible female were taken by Dr Edwards at 2000 to 3000 feet [i.e. 600–900 m] elevation in different localities in the Killin district (Perthshire)'. This species has since been found very locally in several widely scattered montane localities in western Scotland (Horsfield, 1984, 1988; D. Horsfield, pers. comm.). Abroad the species has a circumpolar distribution; its headquarters is Scandinavia but it extends via the Faroes to much of the arctic part of North America. It is also well distributed in the Alps (Hennig, 1974). In spite of its widespread distribution abroad, its larval habits do not appear to have been recorded.

In July 1984 while collecting at 840 m on the south slopes of Sanna, in Kilpisjärvi, Finland, I came across some dipterous larvae boring down the shoots of moss campion, *Silene acaulis* (L.) Jacq. Although one of the larvae eventually pupated, it failed to develop any further.

On 2.viii.1992 similar dipterous larvae were found at 500 m on the crags in Corrie Fee (O. S. grid ref. NO2474), Glen Doll, Angus (vice-county 90). Again they were boring down the centre of the shoots of *Silene acaulis*. Each larva bored down the centre of a shoot eating out the mesophyll from each leaf in turn until nearly all the green leaves had been reduced to empty brown sheaths. It then emerged from the shoot, crawled over the surface of the leaf cushion and bored down another shoot often a centimetre or more away. Several shoots were consumed in this way before the larva descended to the base of the cushion to pupate in the damp substrate. If the larva fell through the cushion while moving from one shoot to another—a difficult action in the wild but easily engineered in a rearing tube—it seemed unable to find its way back up onto the cushion of growing shoots. This phenomenon indicates that the larva is very dependent on the physical structure of its foodplant for its survival and so may be restricted to *Silene acaulis*. This possible specificity to moss campion is further supported by the close similarity of the known distributions of the fly and of *S. acaulis* (Jones & Richards, 1962). Towards the end of August a single larva burrowed into the damp tissues beneath the foodplant, successfully pupated and became quiescent for the winter. In early May the puparium started to show imaginal development within but the male imago died fully formed within the puparium at the beginning of June. Dissection of the genitalia indicated the fly to be *Delia fasciventris* Ringdahl, 1933 (based on illustrations in Ringdahl, 1959) or *Delia piliventris* (Pokorny, 1889) (based on illustrations in Hennig, 1974). Hennig (1974) gives *fasciventris* as a junior synonym of *piliventris*.

On 16.viii.1992 at 600 m on Meall nan Tarmachan (O. S. grid ref. NN5940), near Killin, Perthshire (vice-county 88) further dipterous larval signs were found on *Silene acaulis*. Most of the larvae had abandoned the plants but a single larva was procured. This larva pupated on 29.viii.1992. Again the larva burrowed down some 1 cm into the damp substrate beneath the *Silene acaulis* before pupating. On 23.vi.1993 this puparium produced a female *Delia piliventris*. It is probable that this site is one of Dr Edwards's original localities.



Figs 1-4. Details of the puparium of *Delia piliventris*. Figs 1 & 2. Dorsal and frontal views of anterior end of puparium. Figs 3 & 4. Dorsal and anal views of posterior end of puparium. Scale bar 0.5 mm.



Figure 5. Reconstructed larval mouthparts of final instar larva of *Delia piliventris*.

Comparison of the unemerged puparium from Kilpisjarvi, Finland with that from Corrie Fee showed no appreciable differences between them, suggesting them to be the same species. Details of the puparium and larval mouth-parts of the male specimen from Corrie Fee are shown in Figs 1–5.

ACKNOWLEDGEMENTS

I am grateful to Mike Nelson for invaluable assistance with identification and loan of materials, to Graham Rotheray for nursing the Beinn Lawers female through its final critical stages of development, to Derek Penman for assistance with the scanning electron microscopy and to Colin Warwick for preparation of the photographs. I also acknowledge the cooperation of the Royal Museum of Scotland, Edinburgh in allowing use of the Scottish insect records index.

REFERENCES

- Collin, J. E. 1933. Notes on Perthshire Anthomyiidae, etc. *Scottish Naturalist*, **202**: 119–123.
- Hennig, W. 1974. Anthomyiidae. In: Lindner, E. (Ed.) *Die Fliegen der Palaearktischen Region* **63a** (pt 308), 876.
- Horsfield, D. 1984. *Delia caledonica* Assis Fonseca (Dipt., Anthomyiidae) and other Diptera from the Fannich Hills, West Ross. *Entomologist's Mon. Mag.* **120**: 162.
- Horsfield, D. 1988. *Delia caledonica* Assis Fonseca (Dipt., Anthomyiidae) and other Diptera from An Teallach, Wester Ross. *Entomologist's Mon. Mag.* **124**: 6.
- Jones, V. & Richards, P. W. 1962. Biological flora of the British Isles; *Silene acaulis* (L.) Jacq. *J. Ecol.* **50**: 475–487.
- Ringdahl, O. 1959. *Svensk Insektfauna. 11 Tvavingar. Diptera; Cyclorapha Schizophora Schizometopa. 1 Fam. Muscidae pt. 3* Stockholm/Uppsala.

LETTER TO THE EDITOR

Recent Lepidoptera papers in the journal. I was absolutely delighted to discover on receipt of the latest issue (*Br. J. Ent. Nat. Hist.* 1993, **6(4)**), two papers on British Lepidoptera. These papers, *The British Epermeniidae* and *The British species of Caryocolum* are of a similar style and format to their predecessors. Since I cannot recall noting any published responses relative to this 'series' I would like to take the opportunity to state that I find such papers extremely valuable as a data source. The Society performs a valuable service to its members in publishing papers of this type. Although my interests are heavily biased towards the Lepidoptera, and thus I am not entirely in a position to comment, I can well imagine that similar papers on the other orders are equally valuable. Whilst fully appreciating the amount of time and effort which has to be invested in compiling these accounts I hope we may look forward to further contributions. In addition, in the plates of the latest publication I think the inclusion of specimens from yesteryear is most welcome. I would like to think that if messers Bankes and Ford are looking down on us now they would be delighted that full use is still being made of their collections.

However, I do have one query. Whilst perusing the accounts of the various species I noted under *Caryocolum blandulella* that the larva has been found in Britain and in Sweden. But no dates are quoted! I referred to such literature as was within reach from the comfort of my armchair and noted that there was a vacancy for this particular piece of information in all the volumes which were at hand. Information upon this small point would be most welcome as dates are quite often the base from which searches for various species are conducted.—M. H. Smith, 42 Bellefield Crescent, Trowbridge, Wiltshire.